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REMARKS

Claims 1, 4-21, 24-35, and 37-40 are all the claims pending in the application. Claims 2-3, 22-23 and 36 are canceled above. Claims 4, 17, and 38 stand objected to only as being dependent upon a rejected base claim, and would be allowable if rewritten and independent form to include all the limitations of the base claim and any intervening claims. Claims 4, 17, and 38 have been rewritten in independent form to place them in condition for immediate allowance. In addition, dependent claim 24 has similarly been rewritten and appears to be similarly allowable. Therefore, it is Applicants' position that claims 4, 17, 24, and 38 are in condition for immediate allowance.

Claims 28, 29, and 31-34 stand rejected upon informalities. Claims 1, 5-8, 11-14, 18-21, 25-29, 31-35, 37, 39, and 40 stand rejected on prior art grounds. In addition, the drawings and specification are objected to. Applicants respectfully traverse these objections/rejections based on the following discussion.

I. The 35 U.S.C. §112, Second Paragraph, Rejection

Claims 28-34 stand rejected under 35 U.S.C. §112, second paragraph. The claims have been amended, above, to overcome this rejection. Specifically, the measuring process in claim 28 has been amended to "measuring of said flatness of said device" and the adjusting process in claim 29 has been amended to "adjusting of said height of said electrostatic pins" to provide proper antecedent basis for the terminology. It is Applicants' intention that the foregoing amendment not narrow or broaden the scope of the claims, but instead that the amendments merely eliminate any vagueness or grammatical errors from the claims. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

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II. The Prior Art Rejections

Claims 1, 8, and 10 stand rejected under 35 U.S.C. §102(b) as being anticipated by van Os et al., hereinafter "van Os" (5,708,556). Claims 8, 11 and 13 stand rejected under 35 U.S.C. §102(b) as being anticipated by Anderson et al., hereinafter "Anderson" (2002/0141133). Claims 2 and 9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over van Os in view of Guyot (5,885,423). Claims 5, 6, 11, and 12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over van Os in view of Shiota. Claims 7 and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over van Os in view of Or et al., hereinafter "Or" (2004/0045509). Claims 14, 16, 18, 19, 21, 23, 25, 26, 28, 29, 31, 33-35, 37, 39, and 40 stand rejected under 35 U.S.C. §103(a) as being unpatentable over van Os in view of Shiota and Lund. Claims 15, 22, 30, and 36 stand rejected under 35 U.S.C. §103(a) as being unpatentable over van Os in view of Shiota, Lund, and Guyot. Claims 20 and 24 stand rejected under 35 U.S.C. §103(a) as being unpatentable over van Os in view of Shiota, Lund, and Or. Applicants respectfully traverse these rejections based on the following discussion.

A. The Rejection Based on Van Os

Applicants' respectfully submit that Van Os does not teach or suggest that the pins can be individually controlled (claim 1) or that the pins are "electrostatic pins" (claims 1 and 8). Thus, as discussed in detail below, it is Applicants' position that independent claims 1 and 8 (and dependent claim 10) are patentable over Van Os.

In column 7, lines 14-27, Van Os explains that the "lifting pins 88" are carried by a yoke member 92 and that the movement of the lifting pins is "synchronized with the yoke member" indicating that all the lifting pins are moved together.

This is different than the claimed invention in one respect because independent claim 1 and 8 define electrostatic pins while Van Os only discloses lifting pins. It is well-known to those ordinarily skilled in the art that "lifting pins" are different than electrostatic pins. Lifting pins are purely mechanical devices used to push or lift the

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wafer off the electrostatic portion of the chuck. Lifting pins do not have an electrostatic component. To the contrary, the structure defined by the claims utilizes adjusting mechanisms with "electrostatic chuck pins" (claim 1) or "electrostatic pins" (claim 8). The only electrostatic member disclosed in Van Os is the electrode assembly 20 (column 5, lines 48-60). Therefore, Van Os does not teach or suggest the electrostatic pins defined by independent claims 1 and 8.

In addition, since Van Os explains that the movement of the lifting pins is "synchronized with the yoke member," this indicates that all the lifting pins are moved together (column 7, lines 14-27). To the contrary, with the claimed invention, the "height adjustment mechanisms are adapted to individually adjust positions of said electrostatic chuck pins" (claim 1). Because Van Os connects the pins to a yoke, the pins must move with the yoke and cannot have independent movement, as is allowed in the claimed invention. Therefore, Van Os is further deficient in teaching that the pins are independently controlled and therefore cannot teach the invention defined by independent claim 1.

In view of the foregoing, it is Applicants' position that Van Os does not teach or suggest adjusting mechanisms with "electrostatic chuck pins" (claim 1) or "electrostatic pins" (claim 8), or that the "height adjustment mechanisms are adapted to individually adjust positions of said electrostatic chuck pins" (claim 1). Therefore, independent claims 1 and 8 are patentable over Van Os. Further, dependent claim 10 is similarly patentable, not only because it depends from patentable independent claim 8, but also because of the additional features of the invention it defines. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

B. The Rejection Based on Anderson

Applicants' respectfully submit that Anderson does not teach or suggest that the pins can be individually controlled (claim 1) or that the pins are "electrostatic pins" (claims 1 and 8). Thus, as discussed in detail below, it is Applicants' position that independent claims 1 and 8 (and dependent claim 13) are patentable over Anderson.

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In paragraph 31, Anderson explains that the "lifting pins 228" are carried by a yoke member 230. Movement of yoke 230 moves all the lifting pins simultaneously. Therefore all the lifting pins are moved together.

This is different than the claimed invention in one respect because independent claim 1 and 8 define electrostatic pins while Anderson only discloses lifting pins. It is well-known to those ordinarily skilled in the art that "lifting pins" are different than electrostatic pins. Lifting pins are purely mechanical devices used to push or lift the wafer off the electrostatic portion of the chuck. Lifting pins do not have an electrostatic component. To the contrary, the structure defined by the claims utilizes adjusting mechanisms with "electrostatic chuck pins" (claim 1) or "electrostatic pins" (claim 8). The only electrostatic member disclosed in Anderson is the chuck 204 (paragraph 28). Therefore, Anderson does not teach or suggest the electrostatic pins defined by independent claims 1 and 8.

Applicants note that while paragraph 30 of Anderson describes that the electrically conductive nature of the lifting pins can be utilized to control the discharge of the wafer, the most that this disclosure makes the pins is conductive pins. Conductive pins are not equivalent to the "electrostatic chuck pins" (claim 1) or "electrostatic pins" (claim 8) that are defined in the claims because "electrostatic" when used in the terminology of an electrostatic chuck is known by those ordinarily skilled in the art to define a structure which creates an electrical charging field that holds the wafer on the chuck. In paragraph 30 of Anderson, the conductive nature of the pins is utilized to discharge any remaining charges within the wafer and this electrically conductive nature does not make the lifting pins equivalent to the claimed "electrostatic" chuck pins which hold or grip the wafer using an electrostatic field. Therefore, it is Applicants' position that Anderson does not disclose the claimed "electrostatic" chuck pins as defined by independent claims 1 and 8.

In addition, since all the lifting pins 228 are supported by the lifting yoke 230, all the lifting pins must move together. To the contrary, with the claimed invention, the "height adjustment mechanisms are adapted to individually adjust positions of said electrostatic chuck pins" (claim 1). Because Anderson connects the pins to a yoke, the pins must move with the yoke and cannot have independent movement, as is allowed in

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the claimed invention. Therefore, Anderson is further deficient in teaching that the pins are independently controlled and therefore cannot teach the invention defined by independent claim 1.

In view of the foregoing, it is Applicants' position that Anderson does not teach or suggest adjusting mechanisms with "electrostatic chuck pins" (claim 1) or "electrostatic pins" (claim 8), or that the "height adjustment mechanisms are adapted to individually adjust positions of said electrostatic chuck pins" (claim 1). Therefore, independent claims 1 and 8 are patentable over Anderson. Further, dependent claim 13 is similarly patentable, not only because it depends from patentable independent claim 8, but also because of the additional features of the invention it defines. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

C. The Rejection Based on Van Os and Guyot

Dependent claim 9, as well as independent claims 1 and 8, are not taught or suggested by this proposed combination of references. Applicants' respectfully submit that the proposed combination of Van Os and Guyot does not teach or suggest that the pins can be individually controlled (claim 1) or that the pins are "electrostatic pins" (claims 1 and 8). Thus, as discussed in detail below, it is Applicants' position that independent claims 1 and 8 (and dependent claim 9) are patentable over the proposed combination of Van Os and Guyot.

In column 7, lines 14-27, Van Os explains that the "lifting pins 88" are carried by a yoke member 92 and that the movement of the lifting pins is "synchronized with the yoke member" indicating that all the lifting pins are moved together. In column 3, lines 43-59, Guyot explains that while independent cable and sleeve assemblies are utilized, such assemblies are utilized "to lift the pins 140 simultaneously" (column 3, line 55). Thus, while Guyot substitutes independent cable and sleeve assemblies for a common yoke member, such assemblies are not independently controlled, but instead are structured to operate synchronously to move the pins simultaneously.

This is different than the claimed invention in one respect because independent claims 1 and 8 define "electrostatic" pins while the proposed combination of Van Os and

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Guyot only discloses lifting pins. It is well-known to those ordinarily skilled in the art that "lifting pins" are different than electrostatic pins. Lifting pins are purely mechanical devices used to push or lift the wafer off the electrostatic portion of the chuck. Lifting pins do not have an electrostatic component. To the contrary, the structure defined by the claims utilizes adjusting mechanisms with "electrostatic chuck pins" (claim 1) or "electrostatic pins" (claim 8). The only electrostatic member disclosed in Van Os is the electrode assembly 20 (column 5, lines 48-60) and in Guyot a conventional electrostatic or mechanical chuck is mentioned in column 3, lines 3-6. Therefore, the proposed combination of Van Os and Guyot does not teach or suggest the electrostatic pins defined by independent claims 1 and 8.

In addition, since both Van Os and Guyot explain that the movement of the lifting pins is "synchronized with the yoke member," (Van Os) and that the assemblies are utilized "to lift the pins 140 simultaneously" (Guyot) this indicates that all the lifting pins are moved together. To the contrary, with the claimed invention, the "height adjustment mechanisms are adapted to individually adjust positions of said electrostatic chuck pins to compensate for flatness deformities in a device being held by said electrostatic chuck pins" (claim 1). Because the proposed combination of Van Os and Guyot connects the pins to a yoke or connects the pins to simultaneously controlled cable and sleeve assemblies, the pins must move together and cannot have independent movement, as is allowed in the claimed invention. Therefore, the proposed combination of Van Os and Guyot is further deficient in teaching that the pins are independently controlled and therefore cannot teach the invention defined by independent claim 1.

In view of the foregoing, it is Applicants' position that the proposed combination of Van Os and Guyot does not teach or suggest adjusting mechanisms with "electrostatic chuck pins" (claim 1) or "electrostatic pins" (claim 8), or that the "height adjustment mechanisms are adapted to individually adjust positions of said electrostatic chuck pins" (claim 1). Therefore, independent claims 1 and 8 are patentable over the proposed combination of Van Os and Guyot. Further, dependent claim 9 is similarly patentable, not only because it depends from patentable independent claim 8, but also because of the additional features of the invention it defines. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

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D. The Rejection Based on Van Os and Shiota

Dependent claims 5, 6, 11, and 12, as well as independent claims 1 and 8, are not taught or suggested by this proposed combination of references. Applicants' respectfully submit that the proposed combination of Van Os and Shiota does not teach or suggest that the pins can be individually controlled (claim 1) or that the pins are "electrostatic pins" (claims 1 and 8). Thus, as discussed in detail below, it is Applicants' position that independent claims 1 and 8 (and dependent claims 5, 6, 11, and 12) are patentable over the proposed combination of Van Os and Shiota.

In column 7, lines 14-27, Van Os explains that the "lifting pins 88" are carried by a yoke member 92 and that the movement of the lifting pins is "synchronized with the yoke member" indicating that all the lifting pins are moved together. In column 3, lines 56-58, Shiota explains that the "lifting pins 5" are supported by a lifting stand 51 which moves all of the lifting pins 5 simultaneously. Therefore, in Shiota the lifting pins 5 are structured to operate synchronously to move the pins simultaneously.

This is different than the claimed invention in one respect because independent claims 1 and 8 define "electrostatic" pins while the proposed combination of Van Os and Shiota only discloses lifting pins. It is well-known to those ordinarily skilled in the art that "lifting pins" are different than electrostatic pins. Lifting pins are purely mechanical devices used to push or lift the wafer off the electrostatic portion of the chuck. Lifting pins do not have an electrostatic component. To the contrary, the structure defined by the claims utilizes adjusting mechanisms with "electrostatic chuck pins" (claim 1) or "electrostatic pins" (claim 8). The only electrostatic member disclosed in Van Os is the electrode assembly 20 (column 5, lines 48-60) and in Shiota a conventional electrostatic chuck 3 is mentioned in column 3, line 28. Therefore, the proposed combination of Van Os and Shiota does not teach or suggest the electrostatic pins defined by independent claims 1 and 8.

In addition, since both Van Os and Shiota explain that the movement of the lifting pins is "synchronized with the yoke member," (Van Os) and that the lifting stand 51 supports the lifting pins 5 (Shiota) this indicates that all the lifting pins are moved

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together. To the contrary, with the claimed invention, the "height adjustment mechanisms are adapted to individually adjust positions of said electrostatic chuck pins to compensate for flatness deformities in a device being held by said electrostatic chuck pins" (claim 1). Because the proposed combination of Van Os and Shiota connects the pins to a yoke or lifting stand, the pins must move together and cannot have independent movement, as is allowed in the claimed invention. Therefore, the proposed combination of Van Os and Shiota is further deficient in teaching that the pins are independently controlled and therefore cannot teach the invention defined by independent claim 1.

In view of the foregoing, it is Applicants' position that the proposed combination of Van Os and Shiota does not teach or suggest adjusting mechanisms with "electrostatic chuck pins" (claim 1) or "electrostatic pins" (claim 8), or that the "height adjustment mechanisms are adapted to individually adjust positions of said electrostatic chuck pins" (claim 1). Therefore, independent claims 1 and 8 are patentable over the proposed combination of Van Os and Shiota. Further, dependent claims 5, 6, 11, and 12 are similarly patentable, not only because they depend from patentable independent claims 1 and 8, but also because of the additional features of the invention they define. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

E. The Rejection Based on Van Os and Or

Dependent claims 7 and 13, as well as independent claims 1 and 8, are not taught or suggested by this proposed combination of references. Applicants' respectfully submit that the proposed combination of Van Os and Or does not teach or suggest that the pins can be individually controlled (claim 1) or that the pins are "electrostatic pins" (claims 1 and 8). Thus, as discussed in detail below, it is Applicants' position that independent claims 1 and 8 (and dependent claims 7 and 13) are patentable over the proposed combination of Van Os and Or.

In column 7, lines 14-27, Van Os explains that the "lifting pins 88" are carried by a yoke member 92 and that the movement of the lifting pins is "synchronized with the yoke member" indicating that all the lifting pins are moved together. In paragraph 14, Or

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explains that the "lift pins 120" are supported by a lift plate 124 which moves all of the lift pins 120 simultaneously. Therefore, in Or the lift pins 120 are structured to operate synchronously to move the pins simultaneously.

This is different than the claimed invention in one respect because independent claims 1 and 8 define "electrostatic" pins while the proposed combination of Van Os and Or only discloses lifting pins. It is well-known to those ordinarily skilled in the art that "lifting pins" are different than electrostatic pins. Lifting pins are purely mechanical devices used to push or lift the wafer off the electrostatic portion of the chuck. Lifting pins do not have an electrostatic component. To the contrary, the structure defined by the claims utilizes adjusting mechanisms with "electrostatic chuck pins" (claim 1) or "electrostatic pins" (claim 8). The only electrostatic member disclosed in Van Os is the electrode assembly 20 (column 5, lines 48-60) and in Or a conventional electrostatic chuck 110 is mentioned in paragraph 13. Therefore, the proposed combination of Van Os and Or does not teach or suggest the electrostatic pins defined by independent claims 1 and 8.

In addition, since both Van Os and Or explain that the movement of the lifting pins is "synchronized with the yoke member," (Van Os) and that the lift plate 124 supports the lift pins 120 (Or) this indicates that all the lifting pins are moved together. To the contrary, with the claimed invention, the "height adjustment mechanisms are adapted to individually adjust positions of said electrostatic chuck pins to compensate for flatness deformities in a device being held by said electrostatic chuck pins" (claim 1). Because the proposed combination of Van Os and Or connects the pins to a yoke or lift plate, the pins must move together and cannot have independent movement, as is allowed in the claimed invention. Therefore, the proposed combination of Van Os and Or is further deficient in teaching that the pins are independently controlled and therefore cannot teach the invention defined by independent claim 1.

In view of the foregoing, it is Applicants' position that the proposed combination of Van Os and Or does not teach or suggest adjusting mechanisms with "electrostatic chuck pins" (claim 1) or "electrostatic pins" (claim 8), or that the "height adjustment mechanisms are adapted to individually adjust positions of said electrostatic chuck pins" (claim 1). Therefore, independent claims 1 and 8 are patentable over the proposed

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combination of Van Os and Or. Further, dependent claims 7 and 13 are similarly patentable, not only because they depend from patentable independent claims 1 and 8, but also because of the additional features of the invention they define. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

F. The Rejection Based on Van Os, Shiota and Lund

Independent claims 14, 21, 28, and 35 as well as dependent claims 16, 18, 19, 21, 25, 26, 28, 29, 31, 33-35, 37, 39, and 40, are not taught or suggested by this proposed combination of references. Applicants' respectfully submit that the proposed combination of Van Os, Shiota, and Lund does not teach or suggest that the pins can be individually controlled (claims 21 and 35) or that the pins are "electrostatic pins" (claims 14, 21, 28, and 35). Thus, as discussed in detail below, it is Applicants' position that independent claims 14, 21, 28, and 35 (and dependent claims 16, 18, 19, 21, 25, 26, 28, 29, 31, 33-35, 37, 39, and 40) are patentable over the proposed combination of Van Os, Shiota, and Lund.

In column 7, lines 14-27, Van Os explains that the "lifting pins 88" are carried by a yoke member 92 and that the movement of the lifting pins is "synchronized with the yoke member" indicating that all the lifting pins are moved together. In column 3, lines 56-58, Shiota explains that the "lifting pins 5" are supported by a lifting stand 51 which moves all of the lifting pins 5 simultaneously. Therefore, in Shiota the lifting pins 5 are structured to operate synchronously to move the pins simultaneously. While Lund discloses a vacuum chuck 122 (column 5, line 13) Lund does not disclose any form of structure which would lift the vacuum chuck and is only referenced in the Office Action for the purposes of showing that a computer can monitor measurement tools.

This is different than the claimed invention in one respect because independent claims 14, 21, 28, and 35 define "electrostatic" pins while the proposed combination of Van Os and Shiota, only discloses lifting pins, and Lund only discloses a vacuum chuck 122. It is well-known to those ordinarily skilled in the art that "lifting pins" are different than electrostatic pins. Lifting pins are purely mechanical devices used to push or lift the

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wafer off the electrostatic portion of the chuck. Lifting pins do not have an electrostatic component. To the contrary, the structure defined by the claims utilizes adjusting mechanisms with "electrostatic chuck pins" (claim 21 and 35) or "electrostatic pins" (claims 14 and 28). The only electrostatic member disclosed in Van Os is the electrode assembly 20 (column 5, lines 48-60) and in Shiota a conventional electrostatic chuck 3 is mentioned in column 3, line 28. Lund only discloses a vacuum chuck 122. Therefore, the proposed combination of Van Os, Shiota, and Lund does not teach or suggest the electrostatic pins defined by independent claims 14, 21, 28, and 35.

In addition, since both Van Os, Shiota explain that the movement of the lifting pins is "synchronized with the yoke member," (Van Os) and that the lifting stand 51 supports the lifting pins 5 (Shiota) this indicates that all the lifting pins are moved together. Further, while Lund generally discusses that a computer can monitor measurement tools, there is nothing within Lund to suggest that electrostatic pins could be adjusted to control the flatness of a device being held by the electrostatic pins.

Lund discloses a system for chemically and mechanically polishing a semiconductor wafer that determines the thickness of the wafer surface film during the polishing process with a real time measurement device, or by determining a work-performed factor and calculating an estimated film thickness from the work-performed factor, and does not disclose measuring the "flatness" of the device (Lund, Abstract). Nowhere does Lund suggest that features of the vacuum chuck 122 should be adjusted to control the flatness of the device being polished. Instead, Lund measures only the thickness of the surface of the device being polished. Lund does not measure flatness and Lund does not teach or suggest adjusting the chuck to control flatness. There is nothing in any of the references that would suggest using the computerized real time measurement in Lund as a way of adjusting features of an electrostatic chuck, much less a method/system that adjusts individual electrostatic pins in order to improve flatness of the device being held by the chuck. Instead, the most that Lund can teach is monitoring a surface thickness during a polishing process, which is not a claimed feature.

To the contrary, the claimed invention can "adjust said flatness of said device by adjusting said height adjustment mechanisms" (claim 14), "adjust said flatness of said device by individually adjusting said height adjustment mechanisms" (claim 21), provide

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a process of "adjusting the height of said electrostatic pins to correct any flatness errors" (claim 28) and of "individually adjusting the height of height adjustment mechanisms connected between said electrostatic chuck pins and a plate of said electrostatic chuck to correct any flatness errors" (claim 35). Because the proposed combination of Van Os and Shiota connects the pins to a yoke or lifting stand, the pins must move together and cannot have independent movement, as is allowed in the claimed invention. Again, Lund discloses nothing about controlling electrostatic pins to control the flatness of a device. Therefore, the proposed combination of Van Os, Shiota, and Lund is further deficient in teaching that the pins are controlled to adjust flatness (claims 14, 21, 28, and 35) or that the pins are independently controlled (claims 21 and 35).

In view of the foregoing, it is Applicants' position that the proposed combination of Van Os, Shiota, and Lund does not teach or suggest adjusting mechanisms with "electrostatic chuck pins" (claims 21 and 35) or "electrostatic pins" (claims 14 and 28), or that the invention can "adjust said flatness of said device by adjusting said height adjustment mechanisms" (claim 14), "adjust said flatness of said device by individually adjusting said height adjustment mechanisms" (claim 21), provide a process of "adjusting the height of said electrostatic pins to correct any flatness errors" (claim 28) and of "individually adjusting the height of height adjustment mechanisms connected between said electrostatic chuck pins and a plate of said electrostatic chuck to correct any flatness errors" (claim 35). Therefore, independent claims 14, 21, 28, and 35 are patentable over the proposed combination of Van Os, Shiota, and Lund. Further, dependent claims 16, 18, 19, 21, 25, 26, 28, 29, 31, 33-35, 37, 39, and 40 are similarly patentable, not only because they depend from patentable independent claims 14, 21, 28, and 35, but also because of the additional features of the invention they define. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

G. The Rejection Based on Van Os, Shiota, Lund, and Guyot

Independent claims 14, 21, 28, and 35 as well as dependent claims 15 and 30, are not taught or suggested by this proposed combination of references. Applicants'

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respectfully submit that the proposed combination of Van Os, Shiota, Lund, and Guyot does not teach or suggest that the pins can be individually controlled (claims 21 and 35) or that the pins are "electrostatic pins" (claims 14, 21, 28, and 35). Thus, as discussed in detail below, it is Applicants' position that independent claims 14, 21, 28, and 35 (and dependent claims 15 and 30) are patentable over the proposed combination of Van Os, Shiota, Lund, and Guyot.

In column 7, lines 14-27, Van Os explains that the "lifting pins 88" are carried by a yoke member 92 and that the movement of the lifting pins is "synchronized with the yoke member" indicating that all the lifting pins are moved together. In column 3, lines 56-58, Shiota explains that the "lifting pins 5" are supported by a lifting stand 51 which moves all of the lifting pins 5 simultaneously. Therefore, in Shiota the lifting pins 5 are structured to operate synchronously to move the pins simultaneously. Guyot explains that while independent cable and sleeve assemblies are utilized, such assemblies are utilized "to lift the pins 140 simultaneously" (column 3, line 55). Thus, while Guyot substitutes independent cable and sleeve assemblies for a common yoke member, such assemblies are not independently controlled, but instead are structured to operate synchronously to move the pins simultaneously. While Lund discloses a vacuum chuck 122 (column 5, line 13) Lund does not disclose any form of structure which would lift the vacuum chuck and is only referenced in the Office Action for the purposes of showing that a computer can monitor measurement tools.

This is different than the claimed invention in one respect because independent claims 14, 21, 28, and 35 define "electrostatic" pins while the proposed combination of Van Os, Shiota and Guyot, only discloses lifting pins. Lund only discloses a vacuum chuck 122. It is well-known to those ordinarily skilled in the art that "lifting pins" are different than electrostatic pins. Lifting pins are purely mechanical devices used to push or lift the wafer off the electrostatic portion of the chuck. Lifting pins do not have an electrostatic component. To the contrary, the structure defined by the claims utilizes adjusting mechanisms with "electrostatic chuck pins" (claim 21 and 35) or "electrostatic pins" (claims 14 and 28). The only electrostatic member disclosed in Van Os is the electrode assembly 20 (column 5, lines 48-60), in Shiota a conventional electrostatic chuck 3 is mentioned in column 3, line 28, and in Guyot a conventional electrostatic or

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mechanical chuck is mentioned in column 3, lines 3-6. Lund only discloses a vacuum chuck 122. Therefore, the proposed combination of Van Os, Shiota, Lund, and Guyot does not teach or suggest the electrostatic pins defined by independent claims 14, 21, 28, and 35.

In addition, since both Van Os, Shiota explain that the movement of the lifting pins is "synchronized with the yoke member," (Van Os) and that the lifting stand 51 supports the lifting pins 5 (Shiota) this indicates that all the lifting pins are moved together. In Guyot, the assemblies are utilized "to lift the pins 140 simultaneously." Further, while Lund generally discusses that a computer can monitor measurement tools, there is nothing within Lund to suggest that electrostatic pins could be adjusted to control the flatness of a device being held by the electrostatic pins.

Lund discloses a system for chemically and mechanically polishing a semiconductor wafer that determines the thickness of the wafer surface film during the polishing process with a real time measurement device, or by determining a work-performed factor and calculating an estimated film thickness from the work-performed factor, and does not disclose measuring the "flatness" of the device (Lund, Abstract). Nowhere does Lund suggest that features of the vacuum chuck 122 should be adjusted to control the flatness of the device being polished. Instead, Lund measures only the thickness of the surface of the device being polished. Lund does not measure flatness, and Lund does not teach or suggest adjusting the chuck to control flatness. There is nothing in any of the references that would suggest using the computerized real time measurement in Lund as a way of adjusting features of an electrostatic chuck, much less a method/system that adjusts individual electrostatic pins in order to improve flatness of the device being held by the chuck. Instead, the most that Lund can teach is monitoring a surface thickness during a polishing process, which is not a claimed feature.

To the contrary, the claimed invention can "adjust said flatness of said device by adjusting said height adjustment mechanisms" (claim 14), "adjust said flatness of said device by individually adjusting said height adjustment mechanisms" (claim 21), provide a process of "adjusting the height of said electrostatic pins to correct any flatness errors" (claim 28) and of "individually adjusting the height of height adjustment mechanisms connected between said electrostatic chuck pins and a plate of said electrostatic chuck to

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correct any flatness errors" (claim 35). Because the proposed combination of Van Os, Shiota connects the pins to a yoke or lifting stand, the pins must move together and cannot have independent movement, as is allowed in the claimed invention. In Guyot, and the assemblies are utilized "to lift the pins 140 simultaneously." Again, Lund discloses nothing about controlling electrostatic pins to control the flatness of a device. Therefore, the proposed combination of Van Os, Shiota, Lund, and Guyot is further deficient in teaching that the pins are controlled to adjust flatness (claims 14, 21, 28, and 35) or that the pins are independently controlled (claims 21 and 35).

In view of the foregoing, it is Applicants' position that the proposed combination of Van Os, Shiota, Lund, and Guyot does not teach or suggest adjusting mechanisms with "electrostatic chuck pins" (claims 21 and 35) or "electrostatic pins" (claims 14 and 28), or that the invention can "adjust said flatness of said device by adjusting said height adjustment mechanisms" (claim 14), "adjust said flatness of said device by individually adjusting said height adjustment mechanisms" (claim 21), provide a process of "adjusting the height of said electrostatic pins to correct any flatness errors" (claim 28) and of "individually adjusting the height of height adjustment mechanisms connected between said electrostatic chuck pins and a plate of said electrostatic chuck to correct any flatness errors" (claim 35). Therefore, independent claims 14, 21, 28, and 35 are patentable over the proposed combination of Van Os, Shiota, Lund, and Guyot. Further, dependent claims 15 and 30 are similarly patentable, not only because they depend from patentable independent claims 14 and 28, but also because of the additional features of the invention they define. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

H. The Rejection Based on Van Os, Shiota, Lund, and Or

Independent claims 14, 21, 28, and 35 as well as dependent claims 20 and 24, are not taught or suggested by this proposed combination of references. Applicants' respectfully submit that the proposed combination of Van Os, Shiota, Lund, and Or does not teach or suggest that the pins can be individually controlled (claims 21 and 35) or that the pins are "electrostatic pins" (claims 14, 21, 28, and 35). Thus, as discussed in detail

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below, it is Applicants' position that independent claims 14, 21, 28, and 35 (and dependent claims 20 and 24) are patentable over the proposed combination of Van Os, Shiota, Lund, and Or.

In column 7, lines 14-27, Van Os explains that the "lifting pins 88" are carried by a yoke member 92 and that the movement of the lifting pins is "synchronized with the yoke member" indicating that all the lifting pins are moved together. In column 3, lines 56-58, Shiota explains that the "lifting pins 5" are supported by a lifting stand 51 which moves all of the lifting pins 5 simultaneously. Therefore, in Shiota the lifting pins 5 are structured to operate synchronously to move the pins simultaneously. In paragraph 14, Or explains that the "lift pins 120" are supported by a lift plate 124 which moves all of the lift pins 120 simultaneously. Therefore, in Or the lift pins 120 are structured to operate synchronously to move the pins simultaneously. While Lund discloses a vacuum chuck 122 (column 5, line 13) Lund does not disclose any form of structure which would lift the vacuum chuck and is only referenced in the Office Action for the purposes of showing that a computer can monitor measurement tools.

This is different than the claimed invention in one respect because independent claims 14, 21, 28, and 35 define "electrostatic" pins while the proposed combination of Van Os, Shiota, and/or Lund only discloses lifting pins, Lund only discloses a vacuum chuck 122. It is well-known to those ordinarily skilled in the art that "lifting pins" are different than electrostatic pins. Lifting pins are purely mechanical devices used to push or lift the wafer off the electrostatic portion of the chuck. Lifting pins do not have an electrostatic component. To the contrary, the structure defined by the claims utilizes adjusting mechanisms with "electrostatic chuck pins" (claim 21 and 35) or "electrostatic pins" (claims 14 and 28). The only electrostatic member disclosed in Van Os is the electrode assembly 20 (column 5, lines 48-60) and in Shiota a conventional electrostatic chuck 3 is mentioned in column 3, line 28. In Or a conventional electrostatic chuck 110 is mentioned in paragraph 13. Lund only discloses a vacuum chuck 122. Therefore, the proposed combination of Van Os, Shiota, Lund, and Or does not teach or suggest the electrostatic pins defined by independent claims 14, 21, 28, and 35.

In addition, since both Van Os, Shiota explain that the movement of the lifting pins is "synchronized with the yoke member," (Van Os) and that the lifting stand 51

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supports the lifting pins 5 (Shiota) this indicates that all the lifting pins are moved together. Further, while Lund generally discusses that a computer can monitor measurement tools, there is nothing within Lund to suggest that electrostatic pins could be adjusted to control the flatness of a device being held by the electrostatic pins.

Lund discloses a system for chemically and mechanically polishing a semiconductor wafer that determines the thickness of the wafer surface film during the polishing process with a real time measurement device, or by determining a work-performed factor and calculating an estimated film thickness from the work-performed factor, and does not disclose measuring the "flatness" of the device (Lund, Abstract). Nowhere does Lund suggest that features of the vacuum chuck 122 should be adjusted to control the flatness of the device being polished. Instead, Lund measures only the thickness of the surface of the device being polished. Lund does not measure flatness, and Lund does not teach or suggest adjusting the chuck to control flatness. There is nothing in any of the references that would suggest using the computerized real time measurement in Lund as a way of adjusting features of an electrostatic chuck, much less a method/system that adjusts individual electrostatic pins in order to improve flatness of the device being held by the chuck. Instead, the most that Lund can teach is monitoring a surface thickness during a polishing process, which is not a claimed feature.

To the contrary, the claimed invention can "adjust said flatness of said device by adjusting said height adjustment mechanisms" (claim 14), "adjust said flatness of said device by individually adjusting said height adjustment mechanisms" (claim 21), provide a process of "adjusting the height of said electrostatic pins to correct any flatness errors" (claim 28) and of "individually adjusting the height of height adjustment mechanisms connected between said electrostatic chuck pins and a plate of said electrostatic chuck to correct any flatness errors" (claim 35). Because the proposed combination of Van Os, Shiota connects the pins to a yoke or lifting stand, the pins must move together and cannot have independent movement, as is allowed in the claimed invention. Again, Lund discloses nothing about controlling electrostatic pins to control the flatness of a device. Therefore, the proposed combination of Van Os, Shiota, Lund, and Or is further deficient in teaching that the pins are controlled to adjust flatness (claims 14, 21, 28, and 35) or that the pins are independently controlled (claims 21 and 35).

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In view of the foregoing, it is Applicants' position that the proposed combination of Van Os, Shiota, Lund, and Or does not teach or suggest adjusting mechanisms with "electrostatic chuck pins" (claims 21 and 35) or "electrostatic pins" (claims 14 and 28), or that the invention can "adjust said flatness of said device by adjusting said height adjustment mechanisms" (claim 14), "adjust said flatness of said device by individually adjusting said height adjustment mechanisms" (claim 21), provide a process of "adjusting the height of said electrostatic pins to correct any flatness errors" (claim 28) and of "individually adjusting the height of height adjustment mechanisms connected between said electrostatic chuck pins and a plate of said electrostatic chuck to correct any flatness errors" (claim 35). Therefore, independent claims 14, 21, 28, and 35 are patentable over the proposed combination of Van Os, Shiota, Lund, and Or. Further, dependent claims 20 and 24 are similarly patentable, not only because they depend from patentable independent claims 14 and 21, but also because of the additional features of the invention they define. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

III. Formal Matters and Conclusion

With respect to the objections to the specifications and claims, the specification and claims have been amended, above, to overcome these objections. With respect to the objection to the drawings, formal replacement sheet drawings were filed by Applicant on May 4, 2005, and were received in the USPTO on May 9, 2005, as shown on the attached date-stamped Submission of Replacement Drawing Sheets form. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the objections to the specification, claims and drawings.

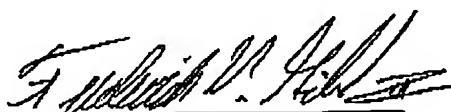
In view of the foregoing, Applicants submit that claims 1, 4-21, 24-35, and 37-40, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

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Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0456.

Respectfully submitted,



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

Kindt et al.

Serial No.: 10/605,773

Group Art Unit: 3722

Filed: October 24, 2003

Examiner: Unknown

For: ADAPTIVE ELECTROSTATIC PIN CHUCK

Commissioner of Patents
PO BOX 1450
Alexandria, VA 22313-1450

SUBMISSION OF REPLACEMENT DRAWING SHEETS

Sir:

Submitted herewith are three sheets of replacement drawing sheets comprising Figures 1-5.
Please replace the drawings originally filed with the accompanying formal drawings. Approval
and acknowledgment of receipt are respectfully requested.

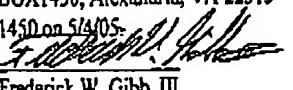
Respectfully Submitted,

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Certificate of Mailing
<p>I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to the Commissioner for Patents, PO BOX 1450, Alexandria, VA 22313-1450 on 5/4/05.</p> <p></p> <p>Frederick W. Gibb, III</p>